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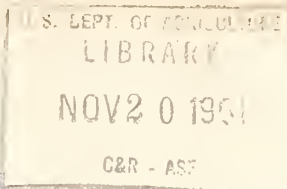


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HAND COLLECTION AND CLEANING OF SEED OF NATIVE FORAGE PLANTS

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Widespread interest in range reseeding has stimulated the use of native species for planting range lands. Many promising species have not been used because of an inadequate seed supply. To help overcome this seed deficiency, machinery (1-8)¹ has been developed to facilitate collecting and cleaning seed of some native species. However, the terrain and the nature of the native stands of some western species makes hand collection the only method of obtaining clean seed for experimental plantings or seed production plots. Hand collection is also necessary on small production plots which do not justify the use of seed collection machinery.

Many methods of hand seed collection have been tried. Hand stripping or flailing the seed directly into a bucket or canvas is the simplest but usually the least efficient method available. Comblike hand strippers have been successfully used to gather seed heads of some species. Seed heads have been cut with sickles, scissors, and knives and threshed at a later date with good results. Although sometimes slow, this last method saves practically all the seed.

A pair of hand paddles provided with corrugated rubber matting for rubbing surfaces is useful for collecting small amounts of clean seed. The paddles are made of 1/4-inch plywood, 7 inches wide and 11 $\frac{1}{2}$ inches long. A steel door-pull provides the handle which is fastened to the back with countersunk, flatheaded stove bolts. Rubber matting is glued to the face of the plywood and made secure around the edges with 1/2-inch wire brads. The most suitable rubber matting has corrugations spaced 1/4-inch apart. A canvas bag supplied with shoulder straps completes the device (Fig. 1).

The method of using the paddles varies with the growth habit of the plants and the thickness of the stand. Seed of tall-growing species may be rubbed loose and caught in the canvas bag. For low-growing

¹/ Numbers in parenthesis refer to literature cited p. 3.

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species, a light metal bucket or tub or a 4' x 4' canvas is substituted for the bag. Where the stand is thick, the seed heads may be rubbed over the receptacle so that the seed is caught directly. In scattered stands, the receptacle may be placed in the center of a collection circle, and the seed from individual plants transferred to it by holding seed between the paddles. A short trial will soon show which method is best adapted to each condition encountered. The most efficient use of the paddles, and whether to rub parallel or at right angles to the culms, and the proper stage of maturity for successful collection of each species can be determined by a few trials. Where seed heads are long or of uneven height, the paddles are pulled upward on the culms as they are rubbed together to loosen the seed. (See Fig. 1.)

Seed which does not rub out well while standing may be gathered by cutting the seed heads. Where the seed in the cut seed heads is too persistent for shaking or flailing, the heads are placed on a large board covered with corrugated rubber matting and threshed by rubbing with the paddles. The board should be fastened at such an angle that the seed will fall into a tub or other receptacle. A board 18" x 30" and an ordinary wash tub have proved convenient for this work. Some species may be threshed immediately after harvesting while others must first be thoroughly dried. The board-and-paddle method has been very useful in threshing small lots of species such as Oryzopsis hymenoides and Koeleria cristata. Where pods or seed heads of species like Penstemon spp., Hedysarum pabulare, Astragalus spp., and Sphaeralcea spp. are stripped by hand, the seeds are easily loosened by using the board and paddles.

Seed gathered with the paddles or threshed with the board and paddle is usually clean enough to plant. Tests have indicated that the paddles are two to four times faster than hand stripping (table 1).

Table 1.- Amounts of seed of various species obtained from comparable stands by hand stripping and by hand paddles.

Species	Hand stripping		Hand paddles	
	No. of trials	Pounds per hour	No. of trials	Pounds per hour
<u>Agropyron dasystachyum</u>	1*	1.58	3	4.78
" "	1	1.03	-	-
" <u>trachycaulum</u>	1	2.00	1	3.00
<u>Bromus carinatus</u>	1	1.80	1	1.90
<u>Festuca idahoensis</u>	2	0.43	2	1.46
<u>Elymus triticoides</u>	1**	1.47	1	1.55
Average		1.25		2.96

* Grass cut with scythe and threshed by flailing on large canvas.

** Some heads collected with comb stripper and hand threshed.

The board and paddle is useful in removing awns from seed lots that are too small for practical de-awning in a hammer mill (7). Awns have been removed in this manner from seed of Stipa comata, Sitanion hystrix, Cercocarpus spp., Cowania stansburiana, Atriplex spp., Hordeum bulbosum, and similar species.

Another hand machine which has not been fully developed but which shows considerable promise is the reel collector shown in figure 2. As the reel is turned by hand, the seed is knocked loose from the seed heads into the collection bag. This machine, although wasteful of seed, is useful for collecting seed of tall-growing native species where power machinery is not practical.

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Figs. 1 and 2. General views of construction and operation of hand paddles and canvas seed collection bag (above), and reel collector (right).



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